

November 29, 2004

YR

CLMPTO

1. A method of forming dual gates in the fabrication of an integrated circuit device comprising:

growing a first gate dielectric layer overlying a substrate;

depositing a polysilicon layer overlying said first gate dielectric layer;

patterning said polysilicon layer to form first NMOS gates;

thereafter growing a second gate dielectric layer overlying said substrate;

depositing a polysilicon-germanium layer overlying said second gate dielectric layer and said first gates;

planarizing said polysilicon-germanium layer and said first gates to a uniform thickness; and

thereafter patterning said polysilicon first gates and said polysilicon-germanium layer to form second NMOS polysilicon gates and PMOS polysilicon-germanium gates in the fabrication of an integrated circuit device.

2. The method according to Claim 1 wherein said first gate dielectric layer comprises an oxide grown to a thickness of between about 12 and 65 Angstroms.

3. The method according to Claim 1 wherein said polysilicon layer is deposited to a thickness of between

about 1500 and 2000 Angstroms.

4. The method according to Claim 1 wherein said second gate dielectric layer is an oxide grown to a thickness of between about 12 and 20 Angstroms.

5. The method according to Claim 1 wherein said polysilicon-germanium layer is deposited to a thickness of between about 1700 and 2000 Angstroms.

6. The method according to Claim 1 wherein said uniform thickness is between about 1500 and 2000 Angstroms.

7. A method of forming dual gates in the fabrication of an integrated circuit device comprising:

 providing a thick device area and a thin device area of a substrate;

 growing a first gate dielectric layer overlying said substrate in each of said device areas;

 depositing a polysilicon layer overlying said first gate dielectric layer;

 patterning said polysilicon layer to form first NMOS and PMOS gates in said thick device area and to form first NMOS gates in said thin device area;

 growing a second gate dielectric layer overlying

said substrate;

 depositing a polysilicon-germanium layer overlying
 said second gate dielectric layer and said first gates;

 planarizing said polysilicon-germanium layer and
 said first gates to a uniform thickness; and

 thereafter patterning said polysilicon first gates
 and said polysilicon-germanium layer to form second NMOS
 and PMOS polysilicon gates in said thick device area,
 second NMOS polysilicon gates in said thin device area,
 and second PMOS polysilicon-germanium gates in said thin
 device area in the fabrication of an integrated circuit
 device.

8. The method according to Claim 7 wherein said first
 gate dielectric layer is an oxide grown to a thickness
 of between about 12 and 65 Angstroms.

9. The method according to Claim 7 wherein said
 polysilicon layer is deposited to a thickness of between
 about 1500 and 2000 Angstroms.

10. The method according to Claim 7 wherein said second
 gate dielectric layer is an oxide grown to a thickness
 of between about 12 and 20 Angstroms.

11. The method according to Claim 7 wherein said polysilicon-germanium layer is deposited to a thickness of between about 1700 and 2000 Angstroms.

12. The method according to Claim 7 wherein said uniform thickness is between about 1500 and 2000 Angstroms.

13. The method according to Claim 7 wherein said NMOS and PMOS polysilicon gates in said thick device area have a width of between about 2400 and 3000 Angstroms.

14. The method according to Claim 7 wherein said NMOS polysilicon gates in said thin device area have a width of between about 700 and 850 Angstroms.

15. The method according to Claim 7 wherein said PMOS polysilicon-germanium gates in said thin device area have a width of between about 700 and 850 Angstroms.

CLAIMS 16-19 (CANCELLED)